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09/880,347	06/13/2001	Tetsuo Hosokawa	3531.65621	7010

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EXAMINER	
FALASCO, LOUIS V	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/880,347	HOSOKAWA ET AL.	
	Examiner	Art Unit	
	Louis Falasco	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-13* is/are pending in the application.

4a) Of the above claim(s) *10-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a)☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

PAPERS RECEIVED

Applicants Amendment and Response to Rejection, received August 29, 2003 is acknowledged as paper #7.

DETAILED ACTION

CLAIMS

The claims under consideration are 1 to 3 and 5 to 9.

ACTIONS ON MERITS

Statuary basis

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Rejections

The following new rejections are made in response to applicants' amendments:

1. Claims 1, and 5 to 9 are rejected under 35 U.S.C. 103(a) as obvious over **Iwata et al** (US 6545955) taken with **Yamaguchi et al** (US 6492035).

Iwata et al teaches the recording medium of the claims that includes a recording layer, a magnetic reproducing means with first and second reproducing layers, but does not demonstrate the first and second reproducing layers being integral layers as in the newly amended claims.

In **Iwata et al** see the first reproducing layer having a first composition (FIG **3** composition of reproduction layer **1**, col. 22 ln 48 or FIG. **8** composition in "Embodiment **3**" of layer **1**) and the second reproduction layer having a second composition only slightly different from the first layer (FIG **3** noting the composition of supplementary reproduction layer **3**, especially "Embodiment **2**" as noted in col. 17 to ln 20; col. 22 ln 50-54 or FIG. **8** composition in the "Embodiment **3**" noting supplementary reproduction layer **3** having similar elemental ingredients in differing portions, this is also evident from Tables **1 - 4** showing variations in the 'Supplemental Reproduction' layer, especially as illustrated in 'sample' #4 of "Embodiment **7**" FIG **3**, and layers **1** and **5 of** "Embodiment **9**").

The instant claims call for Gd alloyed in atomic percentage ranges, differing from within .5 - 3. at%, and .7 - 2. at%.

See 'Embodiments' sections of **Iwata et al** previously noted, the supplementary layers contain an alloy of the same components differing in amounts of the element 'Gd' - also illustrated in Tables **1** though **4** of **Iwata et al** - showing layers of similar compositions with slight differences in portions of Rare Earth, such as "Gd". **Iwata et al** teaches these differences in proportions not recited in percentage - *cf* ranges in Tables **1** though **4** of **Iwata et al** - however they correspond to ranges of the instant claims.

As to the thickness limitations of the claims 8 and 9: see col. 14 ln 59.

Iwata et al does not teach the first and second reproducing layers as integral, however newly cited **Yamaguchi et al** shows the convention of an integral pair of 'Gd' containing first and second reproducing layers.

> In **Yamaguchi et al** see item 3 of Fig. 1 or item 30 of Fig. 8 or item 300 of Fig. 10 where pairs of 'Gd' reproducing layers constitute the integral 'Gd' reproducing layers having differing composition of the 'Gd', also shown for instance at ln 65 of col. 8.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the **Yamaguchi et al** integral layered arraignment for the 'Gd' containing reproducing layers in the **Iwata et al** medium for the purpose of preventing an intervening layer impurity from entering the first and second reproducing layers, degrading the characteristics of the medium (col. 3 lns 16-19 of **Yamaguchi et al**). One skilled in the art would have been motivated to adopt the teachings of **Yamaguchi et al** with the expectation of for the purpose of increasing the reliability and C/N characteristics of the medium sensitivity of the media (shown in Fig. 12 and at col. 9 lns 16-24 and ln 29 of **Yamaguchi et al**).

2. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Iwata et al** taken with **Yamaguchi et al** as applied to claims 1, 8 and 9 above further in view of **Matsumoto et al** (US 6020079).

Iwata et al taken with **Yamaguchi et al** do not teach the addition of a nonmagnetic intermediate layer however **Matsumoto et al** teaches the addition of a non-magnetic intermediate layer in the medium - see layer 26 of Fig. 2 in **Matsumoto et al**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a nonmagnetic intermediate layer of **Matsumoto et al** for the purpose of inducing coupling exchange force. One skilled in the art would have been motivated to adopt the magnetic intermediate layer **Matsumoto et al** with the anticipation of providing exchange coupling and the further expectation of increasing the increasing temperature tolerance of the media for recording information - col. 8 lns 28 - 38 in **Matsumoto et al**.

3. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Iwata et al** taken with **Yamaguchi et al** as applied to claims 1, 8 and 9 above further in view of **Tamanoi et al** (US 6356516).

Iwata et al taken with **Yamaguchi et al** do not teach the addition of a magnetic intermediate layer however **Tamanoi et al** teaches the adding a magnetic intermediate layer in the medium - see layer 30 of Fig. 4 in **Tamanoi et al**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a magnetic intermediate layer **Tamanoi et**

al for the purpose of establishing the exchange force. One skilled in the art would have been motivated to adopt the addition of magnetic intermediate layer **Tamanoi et al** with the expectation of increasing the increasing the easy of reading the information recorded - col. 5 lns 40 - 47 of **Tamanoi et al**.

4. Claims 1, 5, 6, 7, 8, and 9 are rejected under 35 U.S.C. 103(a) as obvious over **Nishimura et al** (US 6125083) taken with **Yamaguchi et al** (US 6492035).

Nishimura et al teaches a recording medium that has a recording layer, a magnetic reproducing layer with a reproducing layer having a first **GdFeCo** alloy composition and a second **GdFeCo** alloy composition layer where the compositions are slightly different, but does not demonstrate the first and second reproducing layers as integral layers as in the newly amended claims.

In Nishimura **et al** see the composition of reproduction layer and 'intermediate' layer of Examples **33, 34, 35** and **36** - the second, slightly different, **GdFeCo** alloy composition (these Examples also show the thickness of claims 8 and 9) *cf* Table **8** compositions. The claims for 'Gd' alloyed in a variety of atomic percentage ranges - ranging from of differences of .5 - 3. at%, and .7 - 2. at% and **Nishimura et al** (Examples **33, 34, 35** and **36** and in Table **8**) shows modifications in the atomic percentages through slight additions of other element, e.g. **Co**, to the **Gd** alloys to affect corrosion resistance - see for instance see the 'Experimental Example' as explained in col. 51 lns 46-63 and in regard to Fig. 31 on col. 52 lns 1-4 and illustrated in Fig. 39. The term "intermediate" *is* used in **Nishimura et al**

instead of the word "reproducing" as in the instant claims -however **Nishimura et al** meets the claim limitation since the claims under consideration are directed solely to an element not a procedure for use - see the **GdFeCo** alloy in col. 56 ln 50 to col. 57 ln 36 and in Table **10** and 'intermediate' layers in Table **11**.
It would have been a matter of routine optimization, to vary the atomic percentage of 'Gd' by the addition of other elements. One of ordinary skill would have been motivated to have the additional elements varying the atomic percentages in the amounts required by these claims as a matter of routine optimization, the ordinary worker would have been motivated to vary atomic percentages to have increased resistance to corrosion and in order to improve the C.N ratio or cross talk and recording density - see **Nishimura et al** col. 87 lns 8-18.

Nishimura et al does not teach the first and second reproducing layers as integral layers, however **Yamaguchi et al** shows the convention of an integral pair of 'Gd' containing first and second reproducing layers.

In **Yamaguchi et al** see item 3 of Fig. 1 or item 30 of Fig. 8 or item 300 of Fig. 10 where pairs of 'Gd' reproducing layers are included to constitute the integral 'Gd' reproducing layers *also* differing composition of the 'Gd' also shown for instance at ln 65 of col. 8.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the **Yamaguchi et al** convention of integral layered arraignment for the 'Gd' containing reproducing layers in the **Nishimura et al** for the purpose of preventing an impurity existing in an intervening layer from entering the

first and second reproducing layers, degrading the characteristics of the medium (col. 3 lns 16-19 of **Yamaguchi et al**). One skilled in the art would have been motivated to adopt the teachings of **Yamaguchi et al** with the expectation of increasing the reliability and C/N characteristics of the medium sensitivity of the media (shown in Fig. 12 and at col. 9 lns 16-24 and ln 29 of **Yamaguchi et al**).

5. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishimura et al** taken with **Yamaguchi et al** as applied to claims 1, 5, 6, 7, 8, and 9 above further in view of **Matsumoto et al** (US 6020079).

Nishimura et al taken with **Yamaguchi et al** does not teach the addition of a non-magnetic intermediate layer in the medium, however **Matsumoto et al** teaches the addition of a nonmagnetic intermediate layer - see layer 26 of Fig. 2.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a non-magnetic layer in the medium of **Matsumoto et al** for the purpose of inducing an exchange force in the media. One skilled in the art would have been motivated to adopt the magnetic intermediate layer **Matsumoto et al** with the expectation of exchange bonding and increasing the temperature tolerance of the media for recording information – col. 8 lns 28 – 38 of **Matsumoto et al**.

6. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nishimura et al** taken with **Yamaguchi et al** as applied to claims 1, 5, 6, 7, 8, and 9 above further in view of **Tamanoi et al** (US 6356516).

Nishimura et al taken with **Yamaguchi et al** does not teach an additional magnetic layer in the medium, however **Tamanoi et al** teaches the addition of a magnetic intermediate layer - see layer 30 of Fig. 4 of **Tamanoi et al**.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a magnetic intermediate layer **Tamanoi et al** for the purpose of having the exchange force in of the media. One skilled in the art would have been motivated to adopt the magnetic intermediate layer **Tamanoi et al** with the expectation having a coupled exchange and increasing the easy of reading the information recorded - col. 5 lns 40 - 47 of **Tamanoi et al**.

7. Claims 1, 5, 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hirokane et al** (US 6534162) taken with **Yamaguchi et al** (US 6492035).

Hirokane et al teaches a recording medium that has a recording layer, a magnetic reproducing layer with layers having the same principle ingredients and compositions of that are slightly different and also does not demonstrate the first and second reproducing layers as integral layers as in the newly amended claims.

In **Hirokane et al** see FIG **11** where composition of magnetization layer **5** has the same principle components only slightly differing from the composition of reproduction layer **1**, *cf* Example **3** - col. 16 ln 29 *with* col. 16 ln 43; see also FIG **14** where compositions of magnetization layer **6** / magnetization layer **7** have the same components only slightly differing in composition from the reproduction layer **1**, *cf* in Example **5** - col. 18 ln 56, 66, col. 19 lns 50, 51 *with* col. 19 ln 1; see FIG **18** where composition of magnetization layer **5** has the same principle components slightly differing from the composition of reproduction layer **1**, also *cf* in Example **8** - col. 22 ln 64, *with* col. 22 ln 66; see FIG **19** where composition of magnetization layer **6** / layer **7** have the same principle components only slightly differing from the composition of reproduction layer **1**, *cf* in Example 9 - col. 24 ln 21, *with* col. 24 ln 22, 23).

Example **6** – col. 20 ln 58 teaching the thickness limitations of dependent claims 8 and 9,

Dependent claims claim for a **Gd** alloyed in a variety of atomic percentage ranges, ranging from of .5 – 3. at%, and .7 – 2. at%.

> The Examples of **Hirokane et al** – notably in Example 37 – call for the layers containing a differing amount of **Gd** – and this is also illustrated in Tables **1** and **2**. However in the Example **5** the **Gd** composition in atomic percent difference are not given for the **Gd** composition alloyed intermediate layers.

A rational selection is required of **Hirokane et al** this selection would have been a matter of routine optimization, merely having an amount that is favorable for adequately reproducing. One of ordinary skill would have been motivated to have the atomic percentages of the instant claims to provide polarity for saturation magnetism (col. 59 lns 28-31 of **Hirokane et al**).

Hirokane et al does not teach the first and second reproducing layers as integral layers, however **Yamaguchi et al** shows the convention of an integral pair of 'Gd' containing first and second reproducing layers.

> In **Yamaguchi et al** see item 3 of Fig. 1 or item 30 of Fig. 8 or item 300 of Fig. 10 where pairs of 'Gd' reproducing layers are included to constitute the integral 'Gd' reproducing layers *cf* differing composition of the 'Gd" also shown for instance at ln 65 of col. 8.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the **Yamaguchi et al** convention of integral layered arraignment for the 'Gd' containing reproducing layers in the **Hirokane et al** for the purpose of preventing an impurity existing in an intervening layer from entering the first and second reproducing layers, degrading the characteristics of the medium (col. 3 lns 16-19 of **Yamaguchi et al**). One skilled in the art would have been motivated to adopt the teachings of **Yamaguchi et al** with the expectation of for the purpose of increasing the reliability and C/N characteristics of the medium sensitivity of the media (shown in Fig. 12 and at col. 9 lns 16-24 and ln 29 of **Yamaguchi et al**).

8. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hirokane et al** taken with **Yamaguchi et al** as applied to claims 1, 5, 6, 7, 8 and 9 above further in view of **Matsumoto et al** (US 6020079).

Hirokane et al taken with **Yamaguchi et al** do not teach the addition of a non-magnetic intermediate layer however **Matsumoto et al** teaches the addition of a non-magnetic layer in the medium - see layer 26 of Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a non-magnetic intermediate layer **Matsumoto et al** for the purpose of inducing an exchange bonding force in the media. One skilled in the art would have been motivated to adopt the magnetic intermediate layer **Matsumoto et al** with the expectation of providing exchange coupling and also increasing the temperature tolerance of the media for recording information – col. 8 lns 28 – 38.

9. Claims 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hirokane et al** taken with **Yamaguchi et al** as applied to claims 1, 5, 6, 7, 8 and 9 above further in view of **Tamanoi et al** (US 6356516).

Hirokane et al taken with **Yamaguchi et al** do not teach the addition of a magnetic intermediate layer however **Tamanoi et al** teaches the addition of a magnetic intermediate layer - see layer 30 of Fig. 4.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the addition of a magnetic intermediate layer **Tamanoi et al** teaches to the recording means of **Hirokane et al** for the purpose of establishing exchange in the of the media. One skilled in the art would have been motivated to

adopt the magnetic intermediate layer **Tamanoi et al** with the expectation of having exchange coupling and increasing the easy of reading the information recorded - col. 5 lns 40 - 47.

CONCLUSION

The claims 1 to 3 and 5 to 9 have been rejected.

No claim has been allowed.

RESPONSE TO AMENDMENT

Applicant's arguments filed 8/29/03 have been fully considered but they are not persuasive.

1. Applicant's arguments with respect to claims 1 to 3 and 5 to 9 have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejection Necessitated by Amendment of Claims

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

INQUIRES

Any inquiry concerning this communication from the examiner should be directed to examiner Louis Falasco, Ph.D. whose telephone number is 703.305-6974. The examiner can normally be reached M-F 9:30 AM - 6:00 PM.

- If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Paul Thibodeau may be reached at 703.308-2367.
- The Fax phone numbers for the organization where this application or proceeding is assigned are: 703.872-9310 for regular communications and 703.872-9311 for After Final communications.
- An inquiry of a general nature or relating to status of this application or proceeding should be directed to the TC 1700 receptionist whose telephone number is 703.308-0651.

LF
10/03

STEVAN A. RESAN
PRIMARY EXAMINER